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**EVALUATING ENVIRONMENTAL PERFORMANCE OF
THREE FINNISH COMPANIES**

Thesis

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ABSTRACT

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Degree programme Business Management.		
Name of thesis EVALUATING ENVIRONMENTAL PERFORMANCE OF THREE FINNISH COMPANIES		
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<p>The idea of thesis was to analyze environmental performance of three Finnish companies through environmental rating canvas. Canvas included five types which emphasized different qualities. Thesis focused mainly to analyze carbon dioxide emissions, energy efficiency and waste management of these target companies.</p> <p>Research was based on Corporate Social Responsibility reports of these three target companies which are Kesko Oyj, KONE Oyj and Outokumpu Oyj. Thesis focused in these reports target companies different responsibility programs and annually set goals and results.</p>		
Key words energy efficiency, environmental performance and green business		

1 INTRODUCTION

Climate change and ecological problems are today's hot topics and consumers are well aware of these issues. Thus people expect that organizations improve their focus on environmental performance, which measures how efficiently organization takes care of its environmental responsibility. Also government and general public are setting more and more legislative sections to businesses to work more ecologically. High price of energy affects also to organizations in a way that they launch new eco-efficient products and solutions to decrease the energy consumption.

In my thesis I will analyze three target companies environmental performance and how they differ from each other and what they emphasize compared to each other. Aim of my thesis is to clarify how effectively these target companies focus on increasing energy efficiency, decreasing carbon dioxide emissions and controlling waste management. Analyzing tool what I use is environmental rating canvas which includes five different types of classification. These different types emphasize different things in environmental matter. Through this canvas I am analyzing the target companies' environmental performance and what types from the canvas can be seen emphasized.

2 WHAT IS GREEN BUSINESS

Green business is a hot topic in these days, but there is one thing that needs to be washed away from your mind when thinking of green business as a business field is that green business is not charity. Green businesses have to compete with and beat non-green businesses. Green enterprises cannot ride on a presumption that their greener solutions and innovative products or services will give them a living just because greener tomorrow is everybody's business. (Kane 2010, 16.)

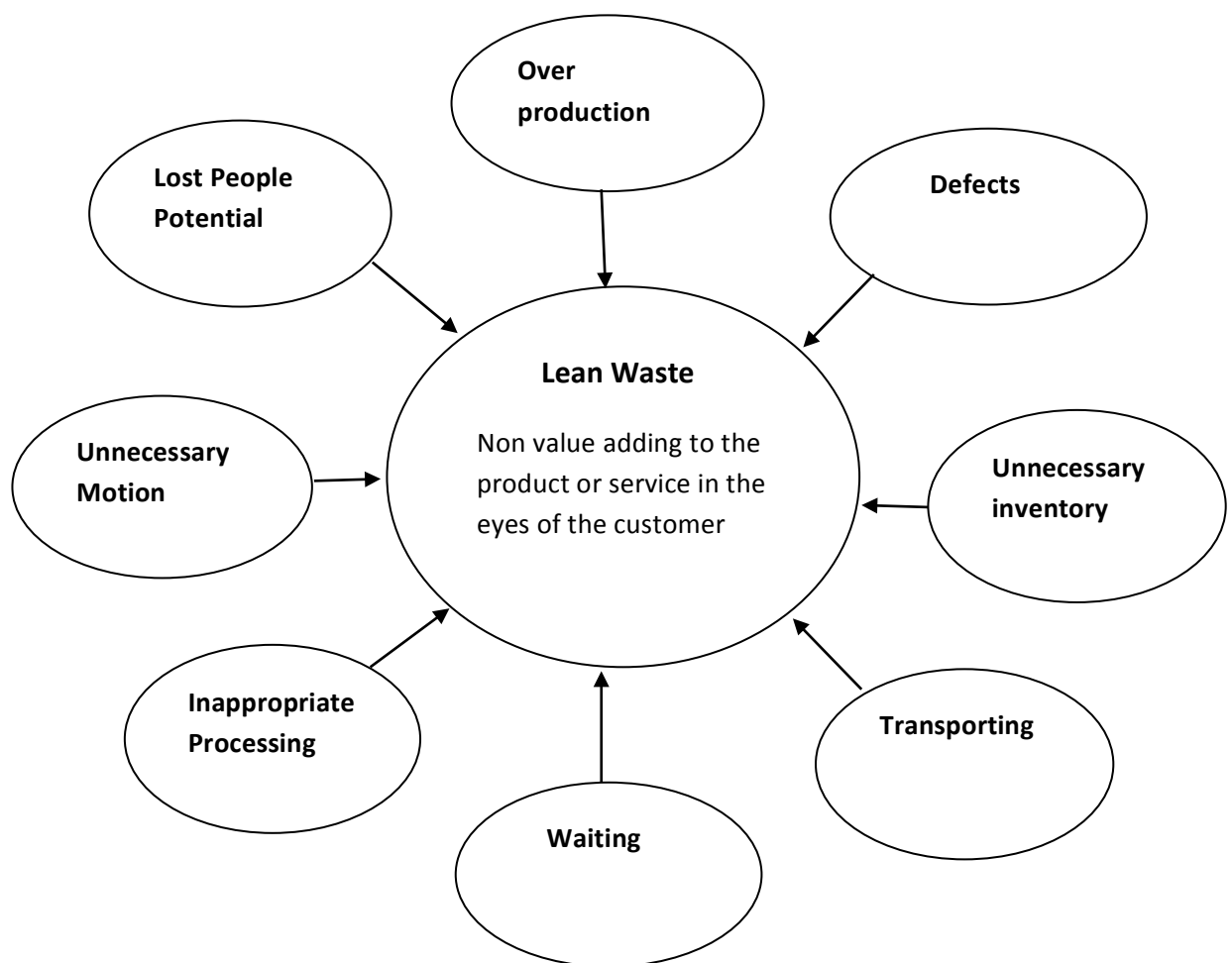
When speaking of green business the main attributes of green organizations are that they observe actively the environment for new forecasts, insights and opinions and absorb them to company's own actions. They are connected to surroundings in every context and issues around eco-efficiency are on the table all the time. Green organizations also aim continuing improvements what they do and how they do it. It is important that green organizations understand how much fossil fuel, minerals, water and other natural resources their business consumes. It's efficiency versus effectiveness. Green enterprises are customer focused and they understand customers' needs and wants. Green enterprises have the right tools on management level to monitor their actions. (Bachman 2009, 10-11.)

It is true that green business as a word can be determined differently by different people and organizations meaning that what is green may differ from organization or people to another. Journal called "Going Green: A Holistic Approach to Transform Business" states three different kinds of businesses how they manage green solutions in their actions: 1. Companies, which provide environmental products and services. 2. Companies that have taken account environmental products and are willingly to change their business. 3. Companies, which have taken some steps to change their activities and efficiency in their brand image. (Kabiraj, Topkar & Walke 2010.)

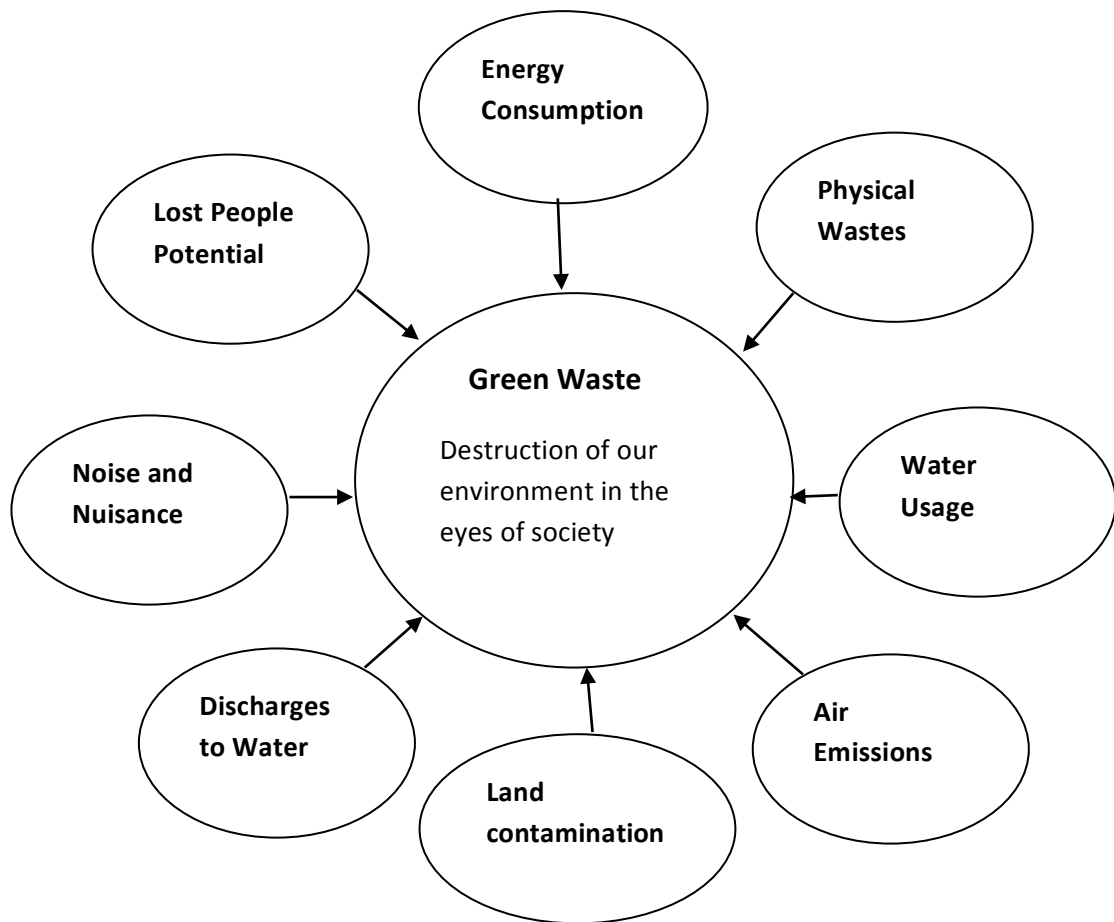
When speaking of green business, the term lean business is also related to this matter. Anyway lean and green differs from each other in their concepts even though they have connectivity towards one another. Definition for green is that it

describes the understanding of society's needs and values, and then analyzing the whole system that delivers these society's needs and values in a way that the eight environmental wastes can be minimized. Then again lean is usually described as understanding the customer's needs and values, and then overviewing the value streams that produce them in a way that eight wastes of lean can be minimized. (Zokaei, Lovins, Wood & Hines 2013, 43–44.)

In graph 1 and graph 2, the eight wastes of both, green and lean are represented. As green wastes are seen in a way that they are destructive to our environment under the lens of society, lean wastes are seen in a way that they will not add any value under the lens of the customers. So lean determines more than just waste elimination. Lean supports the new way of thinking about productivity, quality, efficiency and value creation when green focuses mostly on decreasing the resources used in business operations. (Zokaei et al. 2013, 43–44.)



GRAPH 1. Eight lean wastes (applied from Zokaei et al. 2013, 45)

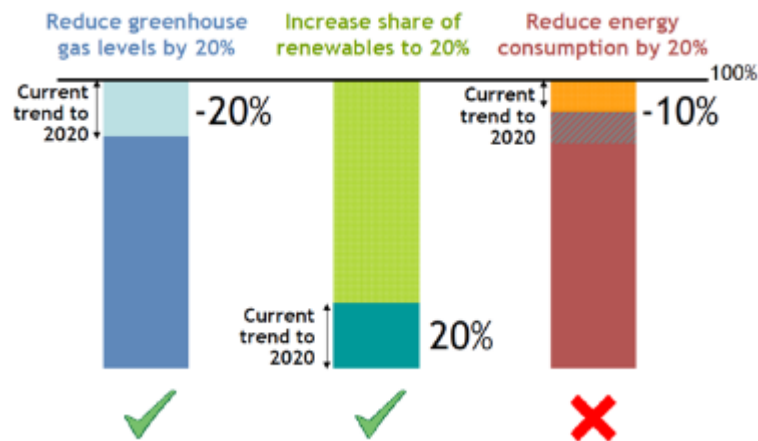


GRAPH 2. Eight green wastes (applied from Zokaei et al. 2013, 46)

2.1 Drivers to green business

It is seen that governments and states are more and more driving businesses towards sustainability. Usually this is seen in hundreds of different legislative sections. Many companies often feel pressure from the general public in a way that companies should launch campaigns on environmental and related issues. Also highly competitive markets and high prices in energy have affected to organizations to publish greener products, services and solutions. (Kane 2010, 8.) Also market pressures would be the biggest impetuses to drive businesses towards greener solutions (Iannuzzi 2012, 6).

Finland being an EU state, it has got different directives to follow. One of these directives has applied to energy efficiency in Finland, specifically the 2020 directive. The given directive is based on three different levels where Finnish operators and companies could change their activities. These are seen in the following graph. (Luoma, Vehviläinen, Oja & Gaia Consulting Oy 2012.)



GRAPH 3. EU 2020 directive. Picture represents goals that are set up by EU. These given goals should be implemented until 2020 (Luoma et al. 2012.)

2020 directive gives instructions for construction, electricity, heating and cooling collaboration and intelligent networking. According to the directive in the future there will be demand for professionals in the field of district heating and collaboration of heating and cooling to improve these fields to more energy efficient. (Luoma et al. 2012, 5-9.)

Researches have also proved that citizen and customers think that organizations usually do not care environmental issues in their actions even if the level of knowledge in environmental issues has risen. Development of different environmental management systems and certificates has shown that this trust can be repaired. Also when many organizations do business globally these days these certificates show trust and accountability, so they increase value of organizations. The most important point in them is that they increase the value of organization.

Management systems certificates in detail in chapter 5. (Heiskanen 2004, 126-127.)

2.2 Environmental responsibility and eco-efficiency

Environmental responsibility means the ways and solutions how companies reduce loading of environment in their actions. Loading of environment is born in different phases of company's production line and transportation. This loading can be divided to three main components. First is the use of materials and energy, second is pollution which is born in activities of company and third component includes the control of risks and what resources it demands from the company. The company's know-how in the matter of decreasing the loading of environment determines the company's level of environmental protection. (Heiskanen 2004, 42–43.)

Being eco-efficient means the amount of utility extracted from each unit of natural resource. Simpler way to describe eco-efficient is a term of energy efficiency. Energy efficiency means the efficiency of used energy, in other words less energy but same results. Simple example is how many miles you can drive with your vehicle per one gallon of gasoline. Thus eco-efficiency is determined around quantities of materials and energy. (Kane 2010, 20–21; Luoma et al. 2012, 1-3.)

3 BENEFITS OF GREEN BUSINESS

There are several benefits when thinking of becoming a green enterprise. Other organizations see the benefits differently and want to emphasize different things and some benefits are more easily seen than the others. Organizations have to understand their business case and choose the ways that benefit and fit their business the most. (Bachman 2009, 12.)

At first what usually comes in mind about benefits of green enterprise are ecological benefits e.g. reduction in the consumption of fossil fuels, usage of water, usage of raw materials in production and electricity. These reductions can take place in every actions of company, from production to transportation of the goods and services. Usually when reducing usage of electricity and usage of water in the organization, it can reach some direct cost savings. Also if material inputs can be reduced with managing the material outputs, there is a reduction in the cost of goods sold and savings associated with waste disposal. (Bachman 2009, 12–13.)

It has been proven that employees usually like working for greener companies. This is because of a psychological fact that people usually want to make the change in the world and green business offers several pluses for your employees. They can feel that they are part of something good, it is not only about profitability or the mission of the organization. Also efficiency in production gives more quality to the product itself and better quality offers greater customer satisfaction. (Kane 2010, 35; Bachman 2009, 14.)

3.1 Becoming a green organization

To become a green enterprise organization needs to understand the importance of change and how to implement the green solutions in to the organizational culture. Simply change management can be divided to two main schools of thought. They are emergent change and planned change. Emergent change emphasis the

importance of right culture and management directions, which are created to lead the organization towards the desired objectives organically. The planned change emphasis that targets are set already and needed projects are planned and implemented. The outcomes and results are measured and monitored, in other words planned change is basically finished strategy how to implement the change in the organization and emergent change gives the right tools to create the change. (Kane 2010, 32.)

3.2 The process of change

Usually nobody likes the thought of change. It has been proven that people often think that change is bad to their work and they are stuck on thinking “We have always done it this way.” In a process of change in organizational culture it is very important to build the right commitment in a whole organization and engage its staff by making them part of the whole process. (Kane 2010, 32–33.)

Committing the leadership is always highly valued in any change of an organization. To achieve lasting commitment in a whole organization and it's every employee it cannot be born with some single action. It must be a process where green attributes can soak in to the organizational culture little by little, step by step. This demands launch of greening programs and strategies, integration of green gumption in a whole organization and role of individuals in this process. These on the other hand demand monitoring, leading and education. (Bachman 2009, 14.)

There is three different approaches for companies that want to implement the value sustainability into their existing brand. First approach is to launch totally new variant of products that has environmentally sustainable features. This does not change already existing products and this new line of products is easy to introduce. In case this new product line is not profitable it can be taken off from the market quite easily. (Berger 2011, 85.)

The second approach aims that sustainable value is added to an already existing product line. This means introducing a new sub-brand, which represents “greener”

version of the existing brand. It is reasonable to ensure the customers that this sub-brand will not taint the main brand. This has to be achieved in a correct marketing message and communication. (Berger 2011, 85.)

The third approach is said to be the most risky one because it means that company aims to change the existing brand by adding environmental sustainability as an additional benefit. In case this particular approach fails, the existing brand may be damaged permanently. (Berger 2011, 85.)

3.3 Green product lifecycle and Eco design

To make an efficient improvement in environmental sustainability of a product or service, it is always crucial to take the whole product lifecycle into account. It starts from the resource extraction and production and then through packaging and distribution it goes to the use and end-of-life handling of a product or service. At each of these mentioned stages organizations should take greener solutions into consideration in case they want to improve their environmental sustainability and support the green product lifecycle. (Bachman 2009, 30.)

In every stage of the lifecycle of a product, there is input of resources, raw materials, energy, water and output of products there will be waste, air emissions, liquid wastes, solid wastes and other releases. These ecological impacts must be taken into consideration and it should be the eco designer's responsibility. Green enterprise should be able to develop systems and give alternative options how they could eliminate and reduce the unwanted effects in their business. This lifecycle assessment is especially product-based approach to environmental management and eco design. (Bachman 2009, 30–31; Heiskanen 2004, 135.)

Good thing to remember about eco design is that it gives alternative approach to designing and redesigning products. The idea of eco design approach is that it affects the earlier stages of designing the product. This kind of environmental assessment and development in production can help organization to determine the greatest environmental impacts of a product in their organization and that way

focus their eco design towards wanted level. The following graph 4 shows how eco design is part of the product development process. As we can see from the picture the eco design takes place in an earlier stages in the production. By environmental assessment organization can determine its products or services environmental impacts beforehand and then start designing the product around better environmental performance. (Bachman 2009, 36–38.)

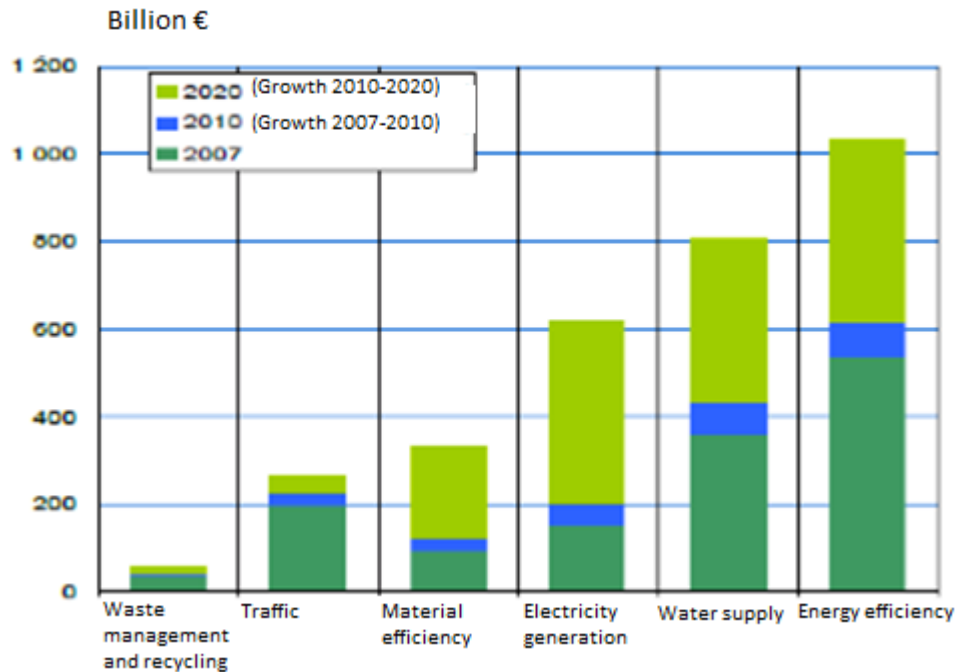


GRAPH 4. Ecodesign part of product development process (applied from Bachman 2009, 36.)

3.4 Cleantech

The term Cleantech means products, services and processes, which advance the sustainable use of natural resources and reduce the negative effects of these processes towards environment. Cleantech can be expanded over boundaries of industrial sector because it can be adapted also to material – and energy-efficiency, renewable energy, water and waste management and controlling the environment. (Ministry of employment and the economy 2014.)

In Finland the overall revenue of Cleantech companies was 20,1 billion and Cleantech employed around 50 000 person in 2011. In Finland there is around 2 000 Cleantech companies and every year the percent of new companies has risen 7-10 %. Overall in the world the share of Cleantech companies is forecasted to rise around 7 %. It is one of the most rapidly developing sectors in the world. In Finland there is also potential more for hydro power companies and biofuels. Following graph 5 on next page describes the rise of Cleantech in different sectors from year 2007 to 2010. Year 2020 describes the possible rise in these sectors. (Luoma etal. 2012)



GRAPH 5. Rise of Cleantech in the world (applied from Luoma et al. 2012, 4.)

Importance of communication

It is seen that it is not enough that company produces eco-friendly products if they lack capability to communicate the sustainability value to their customers. When companies develop a sustainable product they have to realize the importance of communication. Meaning that companies should launch along with the eco-friendly products a convincing communications strategy that analyzes different target groups and their behavior. Market researcher company Procter & Gamble alleges that 45–50 percent of consumers will buy eco-friendly products if it can compete with the price of another available product and there is no adverse with the respect of performance compared to that another available product. (Berger 2011, 83.)

4 MEASUREMENT OF PERFORMANCE

There is number of ways how companies can measure their environmental impact, but they fall into three main types: Key Performance Indicators (KPIs), Proxy indicators and aggregated indicators. Key performance indicators are said to be the easiest and the sturdiest way to determine the impacts in a company. Yet there is difficulties to trade between different parameters e.g. how to compare water pollution with carbon emissions? Examples of potential indicators: rising consumption of water and solid waste, either in terms of volume or mass or consumption of gas, oil and electricity. (Kane 2010, 50–51.)

As a proxy indicator the carbon foot printing is very handy to measure environmental performance in a company because the carbon footprint shows the total amount of greenhouse gas. There is six greenhouse gases and they are laid down in the protocol called “Greenhouse Gas Protocol”. These six gases are carbon dioxide, methane, nitrous oxide, hydro fluorocarbons, per fluorocarbons and sulphur hexafluoride. The Greenhouse Gas Protocol examines four kinds of emissions that should be included. In short they are 1. Direct emissions: includes carbon dioxide emissions from burning fossil fuels, powering vehicles and other equipment (also chemical reactions, leaks and decomposition of organic materials are included). 2. Indirect emissions born in the use of electricity. 3. Indirect emissions from products and services (from its own suppliers.) 4. Emissions from the use of these made products and services. All these four types can be used to determine the company’s carbon footprint. (Kane 2010, 51–52.)

We hear speaking of ecological footprinting, which means the environmental impact of a certain company’s operations towards the area of the Earth’s surface required to enable these operations (land use). Following three definitions determines what this ecological footprinting really measures:

1. the genuine land taken up by buildings and physical infrastructure for example roads;

2. the genuine land that is required to produce fiber, food and forestry products;
3. the theoretic amount of forested land that is required to recycle all carbon dioxide emissions that were caused back into oxygen. (Kane 2010, 54.)

After all when speaking of ecological footprinting it is not the most significant environmental issue compared to companies other effects. Then it is reasonable to take ecological footprinting into consideration if certain organization produces notable amounts of food, fiber and forestry (for example supermarket or clothing industry). In other case carbon footprinting works as a better indicator analyzing company's environmental performance. (Kane 2010, 54.)

Aggregated indicators (also called Eco-indicators) aim to combine and analyze a wide range of environmental impacts (e.g. acid rains, eco-toxic effects and climate change) and make them a single score using subjective weighting. These indicators were popular in 1990s, but the lack of transparency and high dependent on the weights given to the different effects caused that they have fallen out of popularity. (Kane 2010, 45.)

5 ENVIRONMENTAL MANAGEMENT

Planning and executing strategies demand always management in companies. Environmental management means those operations how company wants to decrease the caused loading of environment in their actions. These operations can be: composing environmental programs, educating the personnel or making different kind of investments to protect the environment. It is said that environmental management should tell especially about the future insights of loading of environment. On other words environmental management reacts and sets goals to be achieved in the future when the current numbers and graphs show only what the situation is now. (Heiskanen 2004, 43.)

With the help of leadership company monitors its environmental performance, which refers to caused emissions of the company and use of energy and materials. Evaluation of environmental performance focuses on physical, operative and economical examination. With performance the company evaluates how well it has executed its environmental strategy and how the set goals are achieved. Environmental strategy sets the frames within business is executed. (Heiskanen 2004, 111–112.)

5.1 Environmental strategy as a vanguard

In addition company needs an environmental strategy to manage the whole process. The core of environmental strategy is in how well company wants to endure in environmental issues. The company can be either innovative pioneer or the one which strictly follows the law or one who is leaving behind. In other words how much effort company gives to environmental effects in its actions and how much company wants to compete with ecofriendly solutions. The aim of making an environmental strategy is that it will make a path for the company to achieve sustainability in their actions step by step. (Heiskanen 2004, 45–47.)

Communication is one of the most important factors when organization determines its environmental strategy. Especially in Finland there has been a lot of conversations about how communicative environmental strategy organizations want to do. If organization chooses to be active it usually will publish a lot of information about their increase of environmental performance. This kind of organization wants to make sure that stakeholders notify their investments. In other case if organization chooses to be more passive it may tell that organization wants to keep lower profile on issues around green business even though organization takes care of these issues averagely. Reason for this kind of behavior can be because organization doesn't want to cause too much attention. In any case if the organization choose to be passive or active on its communication level in environmental strategy, the answer will answer to the question: How much organization wants to compete with environmental performance? (Heiskanen 2004, 46–47.)

5.2 Environmental policy and EMS

Over time people have made some environmental management systems to help organizations analyze their actions and how they take environmental issues into consideration. These green business quality systems are developed from the beginning of 1990's. BS 7750 was the first standard system. It was developed in England, in 1992. To Finland this system came in 1994 but it was replaced by ISO 14001 later on. This ISO 14001 is International Standardization Organization and it is the most used environmental management system. There is also other management systems such as Environmental Management and Audit System (EMAS), ISO 9000 Quality standards and ISO 18000 Health & Safety standard. ISO 9000 and ISO 18000 are quite similar to ISO 14001. (Heiskanen 2004, 123; Kane 2010, 45.)

These environmental management systems came after quality systems. Quality systems measured organizations quality in their work. Environmental view for quality came when people started to see effects of their business to the surroundings. In Europe the European Union is one reason why these systems

have increased in organizations. Overall the legislation has tighten organizations activities on comparing how they are done and how they should be done. European Union has given different kind of directives considering environmental solutions that should take action. One of them I already mentioned earlier. (Heiskanen 2004, 126.)

Environmental Management Systems (EMS) require in every case an environmental policy as a pillar of the system. Environmental policy is a written statement which summarizes the vision of organization and how they manage the environmental impacts in their actions. Policy is a public promise and commitment that organization wants to improve their environmental performance. There is no standard form how the policy should be written but there is some useful tips how to write the most efficient way. At first it is important to keep the statement short (no longer than A4 sheet) and easy to read and understand. Also it is important to be realistic in your statements and compare the made promises to your practices in your organization. Lastly remember to get the policy signed, dated and approved by the managing director, CEO or corresponding manager. (Kane 2010, 36–37.)

Environmental policy should contain as a general rule:

- a commitment to ongoing improvement
- recognition of compliance with pertinent environmental legislation as a minimum standard of performance
- a commitment to educate and train the staff in environmental issues and the environmental effects of what they do
- a commitment to the progress surveillance. (Kane 2010, 37.)

5.3 ISO 14001 & purpose of EMSs

ISO 14001 is the most popular type of EMS. Next list summarizes how EMSs work:

- policy, that basically builds the bedrock of the system
- planning: identifying legal requirements and major environmental impacts and then set the wanted objectives and targets

- implementation and operation: includes documentation of roles and responsibilities, procedures for activities, emergency procedures, document control and training/awareness
- checking and corrective action: procedures for monitoring and measuring impacts, correcting non-conformances and auditing the system
- management review: reviews the effectiveness of the EMS in the face of changing internal and external factors. Identifies changes required to maintain that effectiveness. (Kane 2010, 45–46.)

Certified organizations which use ISO 14001 are monitored to get outsourced certifier. This certifier will make sure that terms of the system are fulfilled. Certifier goes through system documentation, interviews employees and overall monitors how the activities of organization are made. This operation will take couple of days in a year. (Heiskanen 2004, 124.)

Researches have proved that these Environmental Management Systems are in a great role building the trust between companies and customers because it has been proved that citizen and customers think that organizations usually do not care environmental issues in their actions. The environmental certification admitted by the third party can be in a great role building this trust. It is also reasonable to note that these environmental certifications and built environmental management systems have started own business field, which offers work for educators, consultants, communicators and certification companies. (Heiskanen 2004, 126-127.)

5.4 Environmental rating

Often companies which want to highlight environmental performance in their business publish their annual reports included with separate environmental report. Environmental report should give specific information about organization actions on environmental level. In which case report can achieve the popularity among ethical – and other external stakeholders who are perhaps willing to invest to this certain organization. (Heiskanen 2004, 116.)

These external stakeholders often evaluate organizations by their environmental performance and put them in a certain rank orders. In addition of environmental reports stakeholders get the information from organizations other ways. These can be different inquiries for companies or visitations with conversations. This sort of environmental classification of organizations started a whole new business sector. These organizations produce information about good or bad operators and their possible environmental risks for the needs of investors, insurers, lenders or other stakeholders'. For example Dow Jones and FTSE provide classification indexes about environmental performance of different organizations. Following table 1 shows how these external stakeholders can type different organizations by using term environmental rating. (Heiskanen 2004, 117–119.)

There is practically five (5) different classification in environmental rating system. When stakeholders started doing environmental rating it was all about focusing on environmental risks that were caused by organizations actions and examining them. These are covered in first three types of classification in the table. Focusing on a single specific question and evaluating it focuses usually on technical environmental problems such as emissions and toxic land-areas. Evaluating environmental risks and responsibilities focuses on environmental responsibility issues such as legislation in environmental point of view, different law processes and economically noticeable environmental risks. Focusing on evaluating eco-efficiency highlights the produced products energy efficiency and gained economic benefit by eco-efficiency. Later on situation changed and environmental rating expanded more on how organizations manage and monitor risks and how they compose environmental strategies. These are covered in the fourth and fifth type of classification. Strategic know-how of organization and capability to take different possibilities into an account highlights the company's strategy, vision, new products and markets part of green business and capability to benefit from environmental issues as a factor of competitiveness. Evaluate Corporate Social Responsibility focuses on organization's capability to practice its CSR and how ethical questions are attached to business management and control. Reputation of organization highlights in CSR. (Heiskanen 2004, 119.)

TABLE1. Environmental rating canvas (applied from Heiskanen 2004, 119.)

Type of Classification	Examples
Focusing on a single specific question and evaluating it.	Toxic land-areas, emissions and other usually technical environmental problems.
Evaluating environmental risks and responsibilities.	Noted and possible environmental responsibility issues, Broke of legislation in environmental point of view, different law processes and economically noticeable environmental risks.
Focusing on evaluating eco-efficiency.	Resource efficiency in products and production (for example consumption of energy) and gained economic benefits by eco-efficiency.
Strategic know-how of organization and capability to take different possibilities into account.	Green business, technology, new products and markets, vision and strategy, organizations capability to benefit from environmental issues as a factor of competitiveness.
Evaluating Corporate Social Responsibility (CSR).	In addition of above how organization practices its CSR and how organization attaches ethical questions in their business to management – and monitoring systems. Reputation of organization.

6 ANALYSIS OF ENVIRONMENTAL PERFORMANCE AMONG THREE FINNISH LISTED COMPANIES

This chapter analyzes three chosen limited companies and their annual- and social responsibility reports to find proof what promises they have made to improve their environmental performance and how these promises have been kept. Earlier mentioned term, environmental rating is the method how I analyze these three companies. Research is executed completely through public information of these specific companies. The time period that is under the process of analysis is limited from 2011 to 2013. I chose this timespan because it will be enough for me to make the sufficient conclusions.

6.1 Research methods

Used research method to analyze three chosen companies is a case study. Case study is usually analyzing organizations certain process, action, department, cascade or history (Alasuutari, Koskinen & Peltonen 2005, 157). Case study is one of the so called fact based perspective when producing and analyzing observations and making researches. The other three fact perspective are: observation research, interview research and written materials based research. Observation research is said to be almost in any case a synonym to qualitative research. Usually observation is a common part of any research. When speaking of qualitative research, by observation research we mean observing natural situations in different locations. (Koskinen, Alasuutari & Peltonen 2005, 77.)

Interview research is also one of these fact perspectives when making researches. There is basically three different interviewing types: Structured interview, half structured interview and deep interview. In short structured interview refers to survey interview where researcher determines the questions and their order and usually gives the answer alternatives. Half structured interview is called here in Finland also as a theme interview. It allows more freedom to the interviewee, meaning that interviewee can answer more freely for the given questions. Lastly a

deep interview aims to minimize the researcher's impact to the interviewing situation. Interviewee answers on his or her own words and eventually determine even the questions for his or her way to think them as. Researcher's responsibility is to support this kind of thought and focuses to understand the interviewee. (Koskinen et al 2005, 104.)

Lastly the research based on the written materials is very common in business economics researches. Usually when analyzing organizations business histories written materials are in a great deal. In quantitative researches written materials are for example statistics, earlier researches, reports, memos, ads and brochures. (Koskinen et al. 2005, 130–131.) My research is basically a case study containing elements of a study which is based on written materials.

6.2 Research goals and target companies

I chose three target companies, which are Kesko Oyj, KONE Oyj and Outokumpu Oyj (later referred as). Each of these companies are limited companies. The reason I chose these specific companies is that they all want to improve their environmental performance but their volume doing so is a bit different compared to each other and they maintain different things.

Kesko is trading Sector Company, which is highly valued. Kesko provides products and services in four main sectors; food trade, building and home improvement trade, home and specialty goods trade and car and machinery trade. The K-group is formed from the Kesko and K-retailers. Retail sales in 2013 were about €11,6 billion (VAT 0%). (Kesko 2014.)

KONE is one of the leading companies that provide elevators, escalators and automation doors. KONE is very internationalized company having over 1 000 offices in about 50 countries abroad. Most of KONE's customers come from the construction sector. Main segments are hotels, offices and other public buildings with multiple floors. In 2013 revenue was 6,9 billion euros and KONE had over 43 000 employee. (KONE 2014.)

Outokumpu provides stainless steel and it is market leader in the world. Produced products are efficient, recyclable and durable. Product range vary from utensils to bridges and energy factories. Produced stainless steel is marketed to be 100 % recyclable, corrosion-resistant hygienic and maintenance-free. Outokumpu has over 12 000 employee in over 30 countries. In 2013, Outokumpu sales were 6,745 million euro. (Outokumpu 2014.)

6.3 Performance analysis

To analyze the environmental performance I use the 5 types of classification model of environmental rating. This model is presented in 19, table 1. (Heiskanen 2004, 119). Through these five types I am trying to find and analyze which types these target companies have emphasized to improve their environmental performance, how they have succeeded and what types drives these companies acts the most. I will focus on only environmental impacts of target companies, which include, emissions, waste, energy efficiency, recycle- and material-efficiency. To measure the environmental performance of each target company I read social responsibility –and annual reports.

6.3.1 Kesko Oyj

According to Kesko's annual reports of social responsibility from 2011 to 2013, it is seen that Kesko has a very efficient strategy increasing their environmental performance. Main themes in these reports were the same. From an environmental performance point of view Kesko has highlighted restraining the climate change, responsible acquisition and overall effects to the society. Kesko has made official responsibility program from 2008 to 2012. Program emphasizes the increase of energy efficiency, restraining the climate change, efficiency of the logistics and transportation, recycling and material efficiency, increasing purchasing from local suppliers, maintaining inclusive shop network in Finland and environmental work in Kesko's stores. In addition program emphasizes responsibility in acquisition, product range, work welfare and soaking this

responsibility deeper in to Kesko's brand image in the customers' eyes. (Kesko 2011.)

Kesko has executed its responsibility program by signing a contract of energy efficient to businesses and that way reduce the energy consumption in Kesko's stores. Goal is to reduce energy consumption by 65GWh at the end of the year 2016. In the stores new freezers and led-lightning technology are practical solutions to increase energy efficiency. Kesko has during 2011 managed to increase straight purchases from local suppliers to 563 million euros (537 million euros in 2010). Purchases from local suppliers is one way how Kesko has managed to decrease relative transportation emissions comparing to year 2007 by 1,1 % Kesko has tried to increase its recycling rate in the warehouses and the grocery stores. During 2011 activities to reduce waste disposal in grocery stores were developed and Kesko managed to increase its grocery stores utilization rates to nearly 90 % (90 % were the set goals to be achieved). (Kesko 2011.)

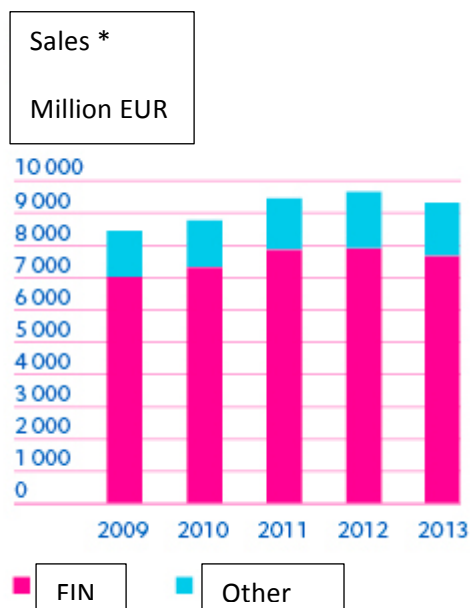
Kesko's every Anttila- department store got ISO 14001 certification in 2011. Kesko wants to improve production range by adding Fair-trade-products to its grocery stores selections more and more. Furthermore Kesko increased amount of energy experts in building and home improvement stores. (Kesko 2011.)

Since earlier responsibility program ended in 2012, new program took place starting from the year 2013 so the year 2012 included analysis how Kesko succeeded to achieve the set goals of responsibility program in 2008-2012. First of all in 2012 purchases from local suppliers rose to 586 million euros. 70 % was achieved as part of the energy efficiency contracts' objective. Relative emissions born in transportations comparing to year 2007 have decreased 5,0 %. Year 2012 also included updating the responsibility program of Kesko, which greatly guides Kesko's acts by setting different goals to be achieved. (Kesko 2012.)

Updated responsibility program starting from 2013 included that Kesko committed to negotiate with other trading companies about new energy efficiency contract which would be launched in 2017. 91 % was achieved from the energy efficiency contracts' objective in 2013. During the same year Kesko managed to offer in

every building and home improvement trading shop at least one energy expert to help customers to find the most eco-efficient building materials and solutions. Kesko committed to decrease its spoilage of food in grocery store by 10 % by the year 2020. By the year 2020 Kesko also aims to decrease relative carbon dioxide emissions by 10 %. In 2013 acts to reduce these emissions Kesko started to develop route planning on trucks and vehicles and using more two-tier trailers for example. In 2013 it was evaluated that nearly 600 000 liters of diesel oil was saved. (Kesko 2013b.)

Kesko's economic situation has been stable during the years 2011-2013 with no significant changes as we can see from the graph 6.



GRAPH 6. Revenue development of Kesko (applied from Kesko 2013a.)

Comparing the CSR-reports of Kesko it is seen that Kesko clearly focuses on three types of classification from the environmental rating canvas. These are focusing on evaluating eco-efficiency, strategic know-how of organization and capability to take different possibilities into an account and last, evaluating Corporate Social Responsibility (CSR) (Heiskanen 2004, 119.) Especially CSR

and brand image are highly valued in Kesko. According to the report of 2012 Kesko emphasized especially how to get more coverage about responsibility acts that Kesko has made over the years in customers eyes. That is why Kesko launched “Tehdään hyvää. Yhdessä.” –campaign starting from 2013. This campaign contains concrete information for the customers about the products, their process of manufacture and country of origin, the customers buy from the stores of Kesko. (Kesko 2011; Kesko 2012; Kesko 2013b.)

Kesko’s CSR reports are very encompassing and specific that is why Kesko’s CSR-report in 2012 for example was selected to be the best report in the Sustainability Reporting Award Finland Competition. Kesko’s report was also chosen to be the best report in the Reader’s Choice Award category by the media and non-governmental organizations. (Kesko 2013b.)

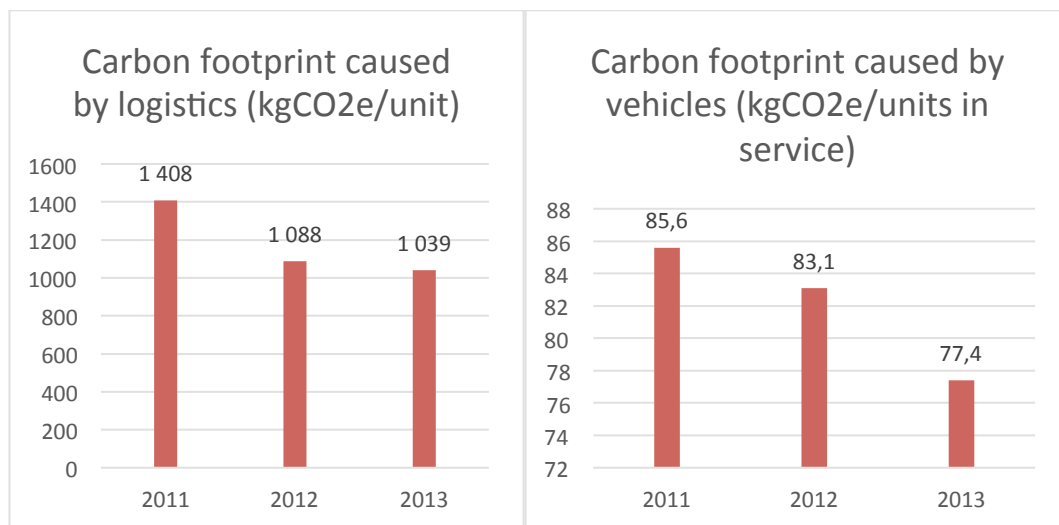
Since I analyzed mainly Kesko’s environmental performance through responsibility programs that Kesko has executed, emissions, energy efficiency, product development and strategies popped up. It is seen that Kesko has strong focus on how to decrease emissions which is under the first type of environmental rating canvas. In addition continuous improvements in energy efficiency, technology and strategies which are included under the types of three and four in environmental rating canvas were clearly seen in Kesko’s reports. Kesko seems to be building and has already built strong layout for environmental performance and it is increasing Kesko’s competitiveness rate. (Heiskanen 2004, 119.)

6.3.2 KONE Oyj

KONE’s main areas on improving its environmental performance are energy efficiency of made products, logistics and number of vehicles that company uses. Safety, global presence, ethics in business, added value divided to stakeholders and committed personnel are also included to these main areas. KONE launched development programs for the years of 2011–2013. These programs included five areas which are: customer experience, committed personnel, innovative People

Flow –solutions, management in services and excellence through supply chain.
(KONE 2011; KONE 2012.)

Especially excellence through supply chain affects one of the six main divisions of KONE, logistics and number of used vehicles. Since the major part of carbon footprint of KONE comes from logistics and used vehicles KONE continuously improves its procedures to decrease the carbon footprint. Analyzing the environmental rating model and five types of classification and comparing them to KONE's acts, types one, three and four can be seen emphasized clearly. Emissions included to the first type of classification and KONE's main two biggest energy consumptions are born in logistics and used vehicles, therefore following graph 7 shows how KONE has managed to reduce their carbon footprint. (Heiskanen 2004, 119; KONE 2011; KONE 2013.)



GRAPH 7. Carbon footprint caused by logistics and vehicles (applied from KONE 2013).

As we can see from the two graphs KONE has managed to decrease its carbon dioxide emissions year by year. Only one form of travelling caused more emissions, airway travelling, but when examining the total consumption rates it did not affect to them, as we can see from the graphs above. Emissions born in airway travelling rose 34,8 % compared to year 2012. Relative growth was 24,2 %. KONE

started to arrange more virtual meetings to decrease the number of actual meetings that demanded travelling by air. These arranged virtual meetings rose 1,5 %. (KONE 2013.)

KONE states that the buildings share of the total energy consumption in the world is around 40 %. Share of elevators and escalators is between 2–10 %. During 2012 KONE's new volume elevators are 70 % more energy efficient than the elevators in 2008. Typical escalator model in 2012 can save 30 % energy than the models in 2010. At its best new solutions for escalators can save even 50 % more energy because new technology slows down the speed of escalator when it is not used.(KONE 2012.)

Eco-efficiency and innovation drives greatly KONE's actions. In every year of my analysis KONE has improved eco-efficiency in its products. KONE's product selection includes KONE EcoDisc® -lifting machine which is the best available in markets. Direct Drive and EcoMod™ -solutions in escalators have improved their energy efficiency. (KONE 2012.)

In 2013 KONE's management announced to start campaign to improve eco-efficiency on its offices. The goal is to reduce offices carbon footprint by 15 % by the end of 2016. To reach this goal KONE is focusing on improving the space-efficiency, optimizing usage of energy in air conditioning, heating, ventilation and using LED-lights and motion detectors in offices. Also improving green computing in offices, increasing share of green electricity, improving recycling and choosing eco-efficient vendors for example. (KONE 2013.)

In 2013 KONE also clarified of its personnel opinions about how environmental issues have been taken care of in the company. Made inquiry highlighted two main issues: practical introductions about environmental practices for work and high environmental demands for vendors. In 2013 KONE also had program called "Excellence in environmental issues". (KONE 2013.)

KONE's revenue during 2011-2013 has been ascending as graph 8 shows.



GRAPH 8. Revenue development of KONE (applied from Taloussanomat.)

KONE has efficient strategy on environmental performance and every solutions in product development projects has to fulfill detailed eco-efficiency criteria, that are confirmed by prototypes and pilot projects and that way KONE aims to minimize the energy consumption. Every product modification is compared to a solution that is in use already and that way KONE makes sure that new solution decreases environmental impacts. (KONE 2011.) This speaks for itself that KONE has efficient strategy and vision and these values are highlighted in 4. type of environmental rating canvas. (Heiskanen 2004, 119.)

Also types 1 and 3 are strongly seen forces driving the acts of KONE. When first type emphasized emissions, for example KONE constantly tries to decrease the amount of emissions that its activities produce. Type three highlighted energy efficiency and products and product processes efficiency, so KONE continuously improves its elevators, escalators and automation doors energy efficiency so that the share of elevators and escalators energy consumption could be reduced to minimum. (KONE 2011; Heiskanen 2004, 119.)

6.3.3 Outokumpu Oyj

Analysing Outokumpu's reports and their environmental goals and results in years 2011–2013 Outokumpu has divided its environmental targets to group-wide and site-specific. Group-wide targets are common ones that affect generally most of the sites whereas production sites targets are more detailed. Outokumpu has committed to the one challenging long-term target, which is to reduce its carbon emissions, both indirect and direct by 20 % per produced tonne by 2020. This programs baseline are years 2007-2009. (Outokumpu 2011.)

In 2011 group-wide results by Outokumpu were reported and no significant environmental incidents had happened. Outokumpu was able to reduce total carbon profile per steel tonne by 3.8 % against the baseline. In energy efficiency Outokumpu managed to improve energy efficiency by 6 % compared to target baseline. Materials efficiency was also improved but the waste landfill was higher than year before. (Outokumpu 2011.)

Results in site-specific Outokumpu were that they managed to reduce specific energy consumption in Avesta, Sweden by 2 %. In Molkom, Sweden where tubular products are produced Outokumpu managed to reduce total amount of heating oil usage by 2 %. In Tornio Works, Outokumpu managed to improve waste management, so that more than 150 000 tonnes slags were utilized as products. Outokumpu has invested heavily on slag-based products (more than 10 million EUR since 2001). By these slag-based products Outokumpu aims to minimize the waste sent to landfills. (Outokumpu 2011.)

In 2012 Group-wide results included that Outokumpu managed to avoid significant environmental incidents. 2020 goal towards reduced emissions Outokumpu's total carbon profile per tonne of steel produced was reduced by 8.5% compared to baseline. Energy efficiency compared to 2011 was improved by 1.1 %. Outokumpu had target on reduce further waste to landfill per tonne of stainless steel produced but it was not improved, remaining basically on a same level. (Outokumpu 2012.)

Site-specific results of 2012 at the Tornio site energy efficiency goal was to reduce overall energy consumption 5 % by 2016. Acts made in 2012 helped Outokumpu to reach this goal of 2016. Also material efficiency goal at Tornio was reached, because the target was to utilize more than 50 % of slag as construction material.

At Kemi mine Outokumpu could not reach the targets that concluded to utilize more than 2 500 tonnes of fly ash from the Tornio Voima power plant and more than 250 000 tonnes of lumpy and barren rock to backfill the stopes of the underground mine. F3 project, which idea was to double the mining and ferrochromium production was the reason why these targets were not reached. Still Outokumpu was able to utilize 1 700 tonnes of fly ash and over 99 000 tonnes of rock was used in backfilling the stopes. (Outokumpu 2012.)

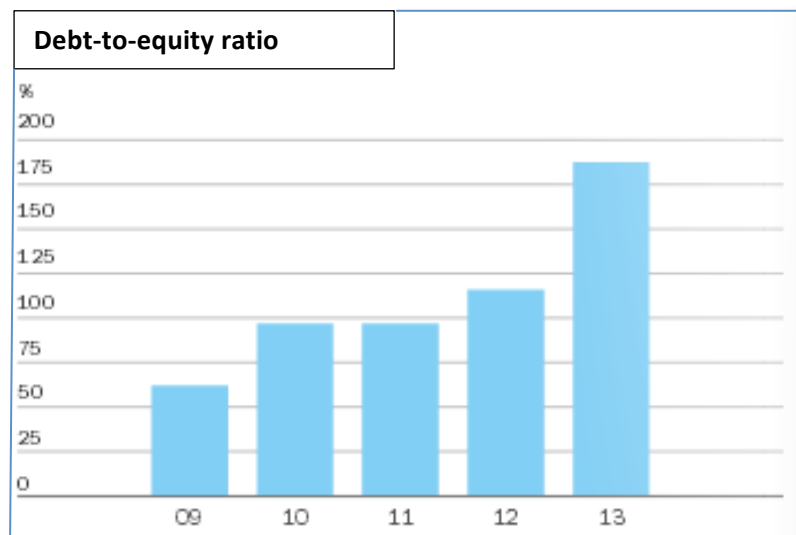
As an example between the years 2010-2012 steel slag was used in house construction projects, totally around 270 000 tonnes but mainly slag goes to road constructions. For example in UK 90 % of slag was used in road constructions. Outokumpu continuously tries to find more efficient ways to reuse the born steel slag. Here in Finland, especially in north, where frost resistance is a very important property of road foundations, steel slag offers actually better technical properties than the natural alternatives such as crushed stones that are mixed to asphalt. (Outokumpu 2012.)

In 2013 group-wide results of Outokumpu were relatively great because no significant environmental incidents happened and Outokumpu's long term goal of reducing direct and indirect emissions by 20 % per tonne of steel produced by 2020 was reduced about 6.5% compared to baseline figures. Energy efficiency improved by over 2 % compared to 2012. Onwards Outokumpu was able to increase material efficiency by decreasing the amount of waste landfilled per produced tonne of stainless steel. Also even higher share of steel slag was utilized. (Outokumpu 2013.)

Site-specific results in 2013, Kemi mine failed in target of increasing the reuse of rock at mine by 500 000 tonnes, because the result was 175 633 tonnes. Although reuse of fly ash was achieved, the goal was 250 000 tonnes and the final amount was over 400 000 tonnes of fly ash reused. In Tornio goal of operational use rate

of air-emission reduction equipment at processes over 99 % could not be achieved, because eight times operational level was below 99 %. In Avesta carbon dioxide emissions reduced by 9 % against 2012. In Degerfors energy efficiency was improved according to long-term target by 7 % against 2012. (Outokumpu 2013.)

Outokumpu has been in economic downhill because from the year 2012 to 2011 its sales decreased by 9 % and in 2013 sales decreased by 15.3 % compared to 2012. Outokumpu's debt-to-equity ratio has also increased year by year as we can see from the graph 9. (Outokumpu 2012; Outokumpu 2013.)



GRAPH 9. Debt-equity-ratio of Outokumpu (applied from Outokumpu 2013.)

Even though Outokumpu has been in economic problems, it has managed to keep its environmental competitiveness maintained. Various indexes recognized Outokumpu's acts on improving sustainable development, for example Outokumpu was recognized in Dow Jones indexes for 7 years in a row in 2013. Since Outokumpu provides stainless steel products, this itself supports the idea of sustainable development. Stainless steel is very durable and long lasting solution and when it reaches the end of its life cycle it can be efficiently recycled. (Outokumpu 2013.)

Analyzing Outokumpu's acts through environmental rating canvas Outokumpu mainly focuses on the first type which includes focusing on a single specific question and evaluating it. In this case it means focusing on increasing the waste management: decreasing the amount of waste to landfills and increase the usage of slag. These naturally demand technology and strategies, type 3: eco-efficiency evaluation and type 4: strategic know-how of organization, can be seen highlighted as well. (Heiskanen 2004, 119; Outokumpu 2011; Outokumpu 2012; Outokumpu 2013.)

Since Outokumpu is highly industrial company it has to follow certain legislative sections set for the industrial organizations. In addition risk analyses and risk management are emphasized in Outokumpu as we saw in group-wide targets where was stated that no significant incidents were happened during 2011-2013. These prove that type 2: evaluating environmental risks and responsibilities affect Outokumpu's acts. (Heiskanen 2004, 119; Outokumpu 2011; Outokumpu 2012; Outokumpu 2013.)

TABLE 2. Summary table

Type of Classification	Kesko Oyj	KONE Oyj	Outokumpu Oyj
Focusing on a single specific question and evaluating it	During the years 2011-2013 Kesko actively reduced carbon dioxide emissions	KONE emphasized highly carbon dioxide emissions and their reduction plans since major emissions came from logistics and used vehicles in companies activities	Outokumpu actively reduced carbon emissions and it had one challenging long-term goal which included that 20 % carbon emissions should be reduced per tonne produced steel by the year 2020. Also Outokumpu emphasizes reuse of steel-slag that is born in their production
Evaluating environmental risks and responsibilities	Were not too emphasized in Kesko's CSR-reports	Were not too emphasized in KONE's CSR-reports	Since Outokumpu is industrial organization it has to follow some certain environmental legislative sections. Even though all these three companies had to in some level but this was highlighted in Outokumpu
Focusing on evaluating eco-efficiency	Energy efficiency is very important in Kesko (lidded freezers and led-lightning technology in grocery stores and advertisement lights)	Energy efficiency was highly valued in KONE since it had made significant improvements to elevators, escalators and automation doors to increase their energy efficiency.	Energy efficiency is highly valued in Outokumpu. Also material efficiency highlights in Outokumpu's acts (increase of slag based products that I already mentioned in the first type but that affects to third type as well being a part of efficiency of production)
Strategic know-how of organization and capability to take different possibilities into an account	Kesko has very clear strategies to improve its environmental performance (launched campaigns and new products and services such as energy expert – concept)	Strategic know-how of KONE is efficient since it has clear procedures for new products when they make new energy efficient products(pilot projects and prototypes before actual products)	Outokumpu has clear strategy what they do and how they develop themselves (slag-based products and new usage alternatives for slag)
Evaluating Corporate Social Responsibility (CSR)	Kesko has very strong CSR, since it has won CSR –trophies having the best CSR –reports in Finland. This has affected in a way that Kesko has got more popularity among the people	KONE has also CSR –program that they follow which supports the activities I have listed above	Outokumpu has also CSR -program that they follow which supports the activities I have listed above

7 CONCLUSIONS

Meaning of this study was to clarify through environmental rating canvas what these three Finnish companies, Kesko, KONE and Outokumpu have used on improving their environmental performance and what types they have emphasized especially. This study focused on examining these three companies social responsibility reports during years of 2011-2013. From these reports gathered information focused on environmental impacts and programs that were produced to improve environmental performance in these target companies.

It is seen that the body of environmental performance is built on certain similar qualities that these all companies shared. These are reducing emissions, improving energy efficiency and improving material and waste efficiency. It is seen that all types from environmental rating canvas affected to all of these companies more or less but other types were highlighted more than the others. Yet these companies emphasized two types from the environmental rating canvas, type 1 and 3, reducing the emissions and improving the energy efficiency. In brief Kesko's case it is seen that Kesko has strong CSR image. KONE in turn has made pretentious improvements in its products to increase the energy efficiency. Outokumpu's waste management and reuse of steel-slag that is born in their production seems to be emphasized notably.

Economically KONE has the best situation, Kesko's economic situation is stable with no significant changes but Outokumpu's economic situation has been pretty bad and its debt-to-equity ratio was almost nearly 200 %. Even though Outokumpu's has been in economic problems, it has been able to maintain its environmental competitiveness.

Organizations clearly want to exploit competitiveness advance that efficient environmental performance can offer. This can be seen from the target companies CSR –reports, they are inclusive and highlight companies made solutions and improvements to increase environmental performance. These could provide added

value to companies in customers' eyes. In these days people are more aware of environmental issues and ecological problems so people expect companies to take these issues and problems into consideration in their activities.

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